

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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1. Organization of cargo loading and unloading procedures in USSR maritime ports was based on Directive No. 503 (titled "Polozheniye o Normakh i Poryadke Ucheta Stoyanochnogo Vremeni Sovetskikh Sudov v Morskikh Portakh i Portovykh Funktakh"), of the Merchant Fleet Minister, published in June 1950. According to this directive, the following rules were observed:

a. Each MMF Chief Directorate (Glavk) prepared quarterly plans specifying how much time ships could spend in ports, loading and unloading the different types of freight. Specifications were made for all types of ships operating on each MMF Steamship line and all types of freight which the ships transported. These quarterly plans were approved by the Merchant Fleet Minister and forwarded to all MMF ports and steamship companies.

b. Every 10 days steamship companies had to send a detailed schedule of all incoming ships to ports which the companies' ships would visit. This schedule had to be received in port 48 hours before the beginning of the next 10-day period. Ships arriving in ports as scheduled, as well as ships arriving in advance of the scheduled time, were accepted and processed on a priority basis.

c. MMF ship captains were required to inform ports of their ship's arrival by two messages; the first one 48 hours, and the second, 24 hours before reaching port; if the sailing time between two adjoining ports was less than 24 hours, one message had to be sent immediately, and one not later than an hour after the ship left the last port.

d. Two hours before the ship's arrival, ports had to inform incoming ships of the exact place assigned them in ports (roadsteads, pier, landing and numbers) and of the way in which loading and unloading was to be done. (The general term used

STATE	#x	ARMY	#x	NAVY	#x	AIR	#x	FBI		AEC							
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in ports for loading and unloading works was "ship's processing", "Obrabotka Sudna").

e. Ports were required to prepare exact time-schedules for each ship's cargo-processing and have this schedule approved by the company to which the ship belonged.

2. The time for processing MMF freighters' dry cargo in port was determined by:

a. Type of cargo

b. Type of vessel

c. Technical loading and unloading facilities available in individual ports, and which of these facilities were used in the ship's processing [Variant Pogruzo-Razgruzochnykh Rabot].

3. All cargoes processed in USSR maritime ports were broken down into seven basic groups, depending on the amount of work involved in the loading and unloading of each cargo. Regulations governing cargo processing were issued by MMF in compliance with Directive #765 of the USSR Technical Council (Postanovleniye Ekonomicheskogo Soveta Soveta Narodnykh Kommissarov) in June 1940. The following chart gives these regulations:

Group No.	Cargo Index No. (Based on "ship day" unit of work)	TYPE OF CARGO
I	4	Barreled goods (dry goods weighing up to 80 kg., and liquids up to 200 kg.), auto tires, feathers, down, and agricultural machinery weighing up to 60 kg. (non-packed)
II	2.5	Window glass panes and glassware (in wooden cases), explosives, tobacco, lumber and asphalt (unpacked)
III	1.25	Bricks, rubber, raw cotton, jute, aluminum blocks (up to 20 kg. apiece), timber, coke, rock salt, anthracite in bars (labeled "AP"), and barley
IV	1.	Cement (in paper sacks) weighing up to 50 kg., salt (in sacks); iron or steel sheets up to 0.75 meters wide, one inch thick, and five meters long (labeled ST-2); railway ties, coal briquets, and bituminous shale
V	0.9	Flour, heavy grain (wheat, barley, and rye) in sacks, pickled fish in barrels, cement in flax sacks and barrels, wooden poles one meter long and 0.25 meters in diameter, brown coal, ores (except the "special" ores, referred to in the next group, and iron ores)
VI	0.8	Beans, peas, grain (unpacked), small stones, gravel, bauxite (unpacked), and iron ore, "special" ores (chromium, lead, uranium, nickel ores, and unpacked iron ore)
VII	0.7	Wolfram & barium ores (packed), and manganese (unpacked)

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Machinery and equipment which weighed over 200 kg. were considered as special types of cargo.

4. In the Soviet Merchant Maritime there was the following relationship between a ship's transport capacity and its number of holds:

Category Number	Ship's Transport Capacity	No. of Ship's Holds
1	Up to 250 tns.	1
2	251-1,000 tns.	2-3
3	1,001 - 2,000 tns.	3-4
4	2,001 - 3,000 tns.	4
5	3,001 - 5,000 tns.	4-5
6	5,001 tns. and over	6

5. The effectiveness of the over-all cargo processing depended upon:
- Place of processing roadsteads, pier, or landing;
 - Type and capacity of the port's technical loading and unloading facilities;
 - Specific way of ship's processing Variant Pogruzo-Razgruzochnykh Rabot;
 - Availability, and capacity, of port's warehouses and railroad spurs;
 - Number and experience of port's stevedores;
 - The adequate organization of work.
6. The basic unit used in the MMF for all calculations pertaining to cargo processing was a "ship day" Sudosutki. On the basis of its technical facilities, every port prescribed a certain period of time for each type of vessel and each type of cargo to be processed; this period of time was expressed in terms of the "ship day". Work performed by stevedores, and by unloading and loading machinery, however, was expressed in tons.
7. The following chart presents the various specific ways a ship could be processed in Soviet maritime ports Varianty Pogruzo-Razgruzochnykh Rabot.

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Specific Ways of Processing			
No.	Loading	No.	Unloading
1.	RR line to ship	7.	Ship to RR line
2.	Pier to ship	8.	Ship to pier
3.	RR line to motor transportation means to ship	9.	Ship to motor transportation to RR line
4.	Ship to ship (on the roadsteads)	10.	Ship to ship (on the roadsteads)
5.	RR line to pier to ship	11.	Ship to warehouse
6.	Warehouse to ship	12.	Ship to pier to RR line

In addition to the above 12 basic ways of processing, there were some combined methods, i.e., freight train to the warehouse, and from there to the ships, etc. Combined ways were mainly determined by the port loading and unloading facilities (all cargo must be weighed during its processing in port).

8. In 1949, 86% of all ship's processing in Soviet maritime ports was done by mechanized facilities. In 1950, this figure rose to 88%. As disclosed in Malenkov's speech before the Communist Party in Moscow, broadcast on 6 October 1952, the mechanization of cargo processing in USSR maritime ports reached 90% in 1951. Mechanization of cargo procedures in USSR river ports reached 85% in 1951. The mechanical processing of cargoes in Soviet maritime ports was done by:
- Universal type of shore loading and unloading facilities, i.e., stationary and moveable cranes, belt transporters, and slat transporters;
 - Ship's jibs and hoists;
 - Special shore and floating trans-loading facilities (coal and grain transloaders, grain elevators, and warehouses);
 - Combined methods, utilizing shore and ship facilities.

It should be noted, however, that the average effectiveness of crane transloading did not go beyond 40-50% of the theoretical capacity; this disparity was mainly caused by insufficient mechanization of cargo processing in the ship's holds. The annual disparity between the theoretical and actual capacity of crane transloading amounted to approximately 750,000 rubles in Odessa port.

9. In Soviet ports, loading grain into vessels was done by the means of elevators and grain warehouses; the latter were provided with chutes with a capacity of 200-500 tn. per hour. Loading of coal and ores was performed by clamshell cranes of 3 to 15 tn. capacity and derrick cranes having up to 20 tn. capacity per hour.
10. I know of the following standard types of cranes used in Soviet maritime ports:
- Derrick crane with a traverse of 360 degrees; lifting capacity, 3½ tn.; height (gaka), 20 m.; weight, 16 tn.; and equipped with two electric motors - a lifting electric motor of 34 kw. per hour, and a turning electric motor of 12 kw. per hour
 - Derrick crane with a 360° traverse, four tn. lifting capacity, 13 m. height, and 12 tn. weight.

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c. Stationary gantry (Portal'nyy) crane with two hoists, 40-tn. (20 tn. x 2) lifting capacity, 9½ m. height, a moveable step of 14 m., and a lifting (electric motor) capacity of 64 kw. This crane was equipped with two electric motors for carriages of 11 kw. each.

d. ZIS-5 type crane with a three-tn. lifting capacity, equipped with gasoline motor.

e. Lorein (Loreyn) diesel crane with a 10-tn. lifting capacity and a diesel engine of 60 Hp.

f. Tower crane with 20-tn. lifting capacity, and a stationary gantry crane with one carriage which had a 20-tn. lifting capacity, a lifting-height of 11 meters, and length of 20 m. The lifting electric motor had a capacity of 40 kw.

g. Fork lift with 1½ tn. lifting capacity.

h. Ship's hold coal-loader (Tryumnyy Ugol'nyy Razgruzchik)-# S-153) manufactured in Sverdlovsk.

i. Slat (Plastinchatyy) conveyor #KP-1, 1951 model, used for loading and unloading of goods up to 200 kg.; capacity, 100 tn. per hour.

j. The largest crane used in the ports was the TMA-3, 1950 model, which had four wheels, and a towing power of 750-800 kg. This prime-mover was equipped with a N-20 type motor (Pobeda) of 52 HP. The crane was 2 m. long, 1½ m. wide, and one m. high; its weight was 1½ tn.

11. USSR port loading and unloading equipment manufactured in the USSR generally operated on an alternate, three-phase current. Loading and unloading machinery acquired aboard operated on a direct current. Almost all available diesel-electric cranes in the USSR maritime ports were of foreign manufacture. A large number of diesel-electric gantry cranes of the "American hoist" type had been modified and adopted to the alternate, three-phase current. The alternate current in Soviet ports was normally of 500 W; and direct current was either of 400 or 500 W.

12. Types of freight cars generally used on Soviet railways and in Soviet ports were:

Characteristics	Unit of Measure	Flat Cars			Box Cars		Gondola Cars	
Capacity	tons	16.5	20	50	16.6	20	50	60
Gauge	mm.	1524	1524	1524	1524	1524	1524	1524
Length	mm.	9204	9204	13000	7046	6680	13088	12700
No. of Axles		2	2	4	2	2	4	4
Volume	cu. m.	-	-	-	39	45.3	89.4	60

13. The 1951 cargo processing plans for Makhachkala and Baku Ports called for the following:

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Port Makhachkala

(all figures are expressed in terms of a million tons)

Type of cargo	Loading	Unloading	Freight Processing Index Figure (Koefitsient Pererabotki Gruzov)	
			RR Track-Pier-Ship	Ship-Pier-RR Track
Raw cotton				
Machinery & equipment	0.2	0.1	0.2	0.1
Timber		0.1		0.1
Ore		0.1		0.1
Food products	0.1	0.1	0.1	0.1
Total	0.3	0.4	0.3	0.4

The total amount of transported cargo was 700,000 tn. The total amount of processed cargo was 1,400,000 tn. (this figure was the result of both the transported cargo and the processed cargo total).

Port Baku

Type of cargo	Loading	Unloading	Freight Processing Index Figure	
			RR Track-Pier-Ship	Ship-Pier-RR Track
Raw cotton		0.2		0.2
Machinery & equipment	0.5		0.5	
Timber		0.3		0.3
Ore		0.2		0.2
Salt		0.4		0.4
Grain	0.7		0.7	
Food products	0.2		0.2	
Drinking water	0.2			
Total	1.6	1.1	1.4	1.1

The transport total was 2,700,000 tn. The processed cargo total was $2.7 \times (2.5 \times 0.75^x) = 4,600,000$ tn. ($x = 0.75$ is the specific index for Baku port; this lower index figure counterbalanced the advantage of the railroad spur which extended to the Baku pier).

14. The freight processing index figure used in Soviet maritime ports was 80 - 100 % of the actual work. There were constant efforts to lower this figure to 30 - 40 %. Poor coordination between the maritime and railroad authorities was responsible for much difficulty in dispatching railroad cars on schedule.

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